CLAIMS

1. A method for thermal treatment of a domestic water supply pipe containing stagnant water in order to eliminate contaminating agents, which may be mineral salts such as limestone, a biofilm comprising microorganisms, such as amoebae or bacteria, legionellae in particular, characterized in that said pipe (1) comprises over its entire length at least one continuous conducting layer (20; 56) made of ohmic material conducting electric current, and that the method consists in:

a) connecting two portions of said conducting layer via a linking element made of material conducting electric current in order to form a closed conducting loop

b) generating a variable magnetic flux through said closed loop, in order to induce an electric energy in said closed loop, some or all of said electric energy being dissipated by Joule heating in said conducting layer between said two portions, such that some or all of said heat is transmitted and heats said stagnant water initially to a temperature known as the setpoint

c) maintaining the variable magnetic flux so long as the temperature of the stagnant water has not reached a predetermined threshold value known as the treatment temperature

d) adapting the variable magnetic flux in order to maintain the temperature of the stagnant water at a value equal to or greater than said treatment temperature for a predetermined period, known as the treatment period, sufficient to impair the contaminating agents

e) interrupting the variable magnetic flux after said treatment period.

2. The method as claimed in claim 1, characterized in that it comprises, before step a), a step of isolating the pipe (1) containing the stagnant water from the rest of the domestic water distribution circuit (4), by closing a valve downstream (2) and/or a valve upstream (3) of the pipe to be treated, in order to limit or prevent during the treatment the distribution of the water contained in said pipe, and, after step e), a step of re-establishing the distribution of domestic water through said pipe by reopening said valve or valves (2, 3), once the temperature of the stagnant water is returned to the setpoint temperature.

3. The method as claimed in one of claims 1 and 2, characterized in that it comprises, after step e), a step of purging the pipe (1) containing the stagnant water consisting in causing domestic supply water to flow in said pipe, in order to clear away the impaired contaminating agents by discharge.

4. A system of implementing the method according to one of claims 1 to 3, characterized in that it comprises a domestic water supply pipe (1) comprising over its entire length at least one continuous conducting layer (20; 56) made of ohmic material conducting electric current, a linking element (5; 59, 71) made of material conducting electric current connecting two portions (A, B) of said conducting layer in order to form a closed conducting loop (ABA), and a device to generate a variable magnetic flux through said closed loop.

5. The system as claimed in claim 4, characterized in that said conducting pipe comprises at least one tube (10; 50) with a metal core (20; 56) inserted

between an inner layer and an outer layer of an electric insulator (21, 22; 55, 59), the two portions connected by said linking element corresponding to portions of the tube that have been stripped of an insulating layer to expose the metal core and allow an electric contact between the metal core and the linking element.

6. The system as claimed in claim 5, characterized in that said conducting pipe comprises several tubes (10; 50) with metal core connected by connectors, the electric continuity of the whole pipe being provided at said connectors by intermediate electric linking elements connecting each of the stripped ends, adjacent to a connector, of the tubes situated either side of said connector.

7. The system as claimed in claim 5, characterized in that said conducting pipe comprises several tubes (10; 50) with metal core connected by conducting connectors (12, 28; 52, 113) comprising a layer made of a material conducting electric current.

8. The system as claimed in claim 7, characterized in that at least one conducting connector (70; 113) comprises at least one shoulder (62) allowing an electric contact between on the one hand the conducting layer of the conducting connector and on the other hand a portion of the metal core (56), situated at the end of the tube adjacent to the connector, stripped of at least one of its insulating layers (55).

9. The system as claimed in claim 7, characterized in that at least one conducting connector (12, 13) comprises an outer conducting annular element (35) furnished with spikes projecting radially inward (36) which pass through the outer layer of insulation (21) of the tube (10) and make contact

with the metal core (20) of the tube, providing electric continuity between said metal core of said tube and said conducting layer of said conducting connector.

10. The system as claimed in one of claims 5 to 9, characterized in that the pipe comprises several tubes (50) having a second metal core (58) forming the linking element placed between said outer layer (59) and the first metal core (56) and separated from the latter by an additional layer (57) of an electric current insulator.

11. The system as claimed in one of claims 4 to 10, characterized in that said device for generating a variable magnetic flux through said loop (ABA) is a transformer (6) with magnetic core (8) whose primary winding (7) is supplied with a variable current and whose secondary winding consists of said closed conducting loop.

12. The system as claimed in claims 7 and 11 in combination, characterized in that at least one of the conducting connectors (52), called the transformer connector, comprises on the one hand an inner wall (70) where said current conducting layer is situated, and on the other hand an outer wall (71) defining with the inner wall an annular space (85) between the two walls, in which is housed the magnetic core (8) and the primary winding (7) of said transformer (6).

13. The system as claimed in claims 10 and 12 in combination, characterized in that said transformer connector (52) comprises in its outer wall (71) a second layer conducting the electric current in electrical connection with said second metal core (58) of the tube (50) and such that the two conducting layers of the transformer connector

are electrically insulated one from the other.